



INSTITUTO FEDERAL
Ceará

Eletrônica para Informática

Expressão Booleana a partir da TV



Determinando a Expressão Lógica com a Tabela Verdade

A	B	C	S
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1



Determinando a Expressão Lógica com a Tabela Verdade

A B C	mintermo
0 0 0	$\overline{A} \cdot \overline{B} \cdot \overline{C}$
0 0 1	$\overline{A} \cdot \overline{B} \cdot C$
0 1 0	$\overline{A} \cdot B \cdot \overline{C}$
0 1 1	$\overline{A} \cdot B \cdot C$
1 0 0	$A \cdot \overline{B} \cdot \overline{C}$
1 0 1	$A \cdot \overline{B} \cdot C$
1 1 0	$A \cdot B \cdot \overline{C}$
1 1 1	$A \cdot B \cdot C$



Determinando a Expressão Lógica com a Tabela Verdade

A	B	C	S
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

$\overline{A} \cdot \overline{B} \cdot \overline{C}$

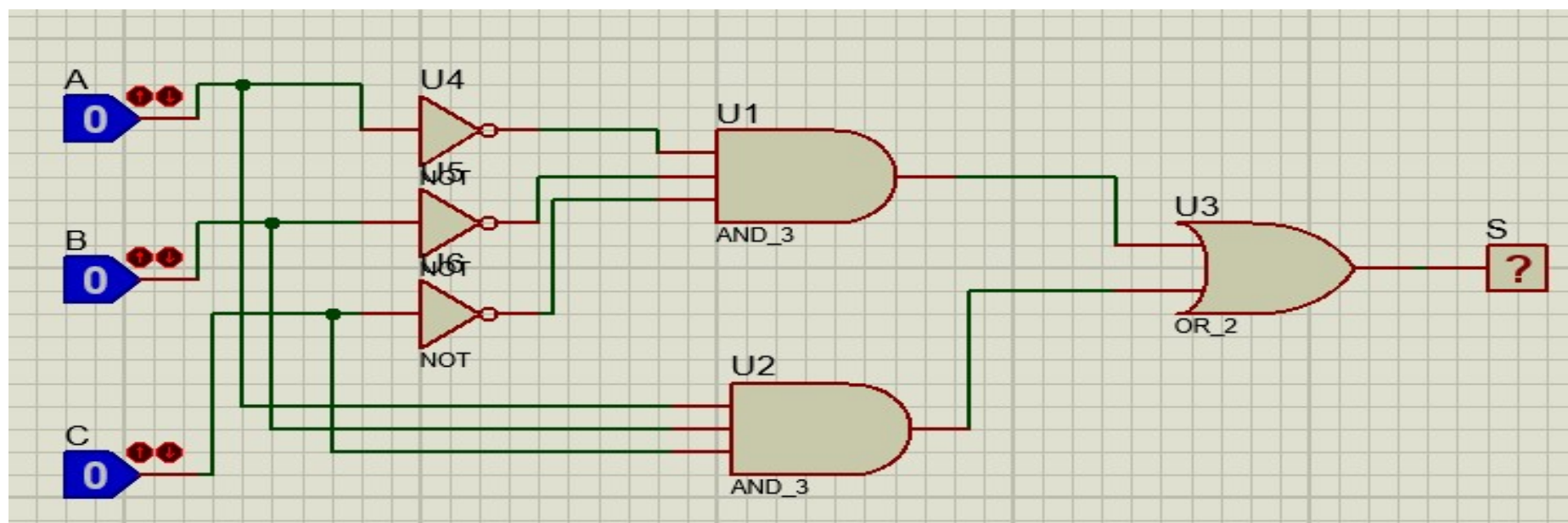
$A \cdot B \cdot C$

$$S = \overline{A} \cdot \overline{B} \cdot \overline{C} + A \cdot B \cdot C$$



Determinando a Expressão Lógica com a Tabela Verdade

$$S = \overline{A} \cdot \overline{B} \cdot \overline{C} + A \cdot B \cdot C$$





Determinando a Expressão Lógica com a Tabela Verdade

A B C	F
0 0 0	0
0 0 1	0
0 1 0	1
0 1 1	1
1 0 0	0
1 0 1	1
1 1 0	1
1 1 1	0

$$F = m_2 + m_3 + m_5 + m_6$$



Determinando a Expressão Lógica com a Tabela Verdade

A B C	F
0 0 0	0
0 0 1	0
0 1 0	1
0 1 1	1
1 0 0	0
1 0 1	1
1 1 0	1
1 1 1	0

$$F = m_2 + m_3 + m_5 + m_6$$

$$F = \sum(2,3,5,6)$$



Determinando a Expressão Lógica com a Tabela Verdade

A B C	F
0 0 0	0
0 0 1	0
0 1 0	1
0 1 1	1
1 0 0	0
1 0 1	1
1 1 0	1
1 1 1	0

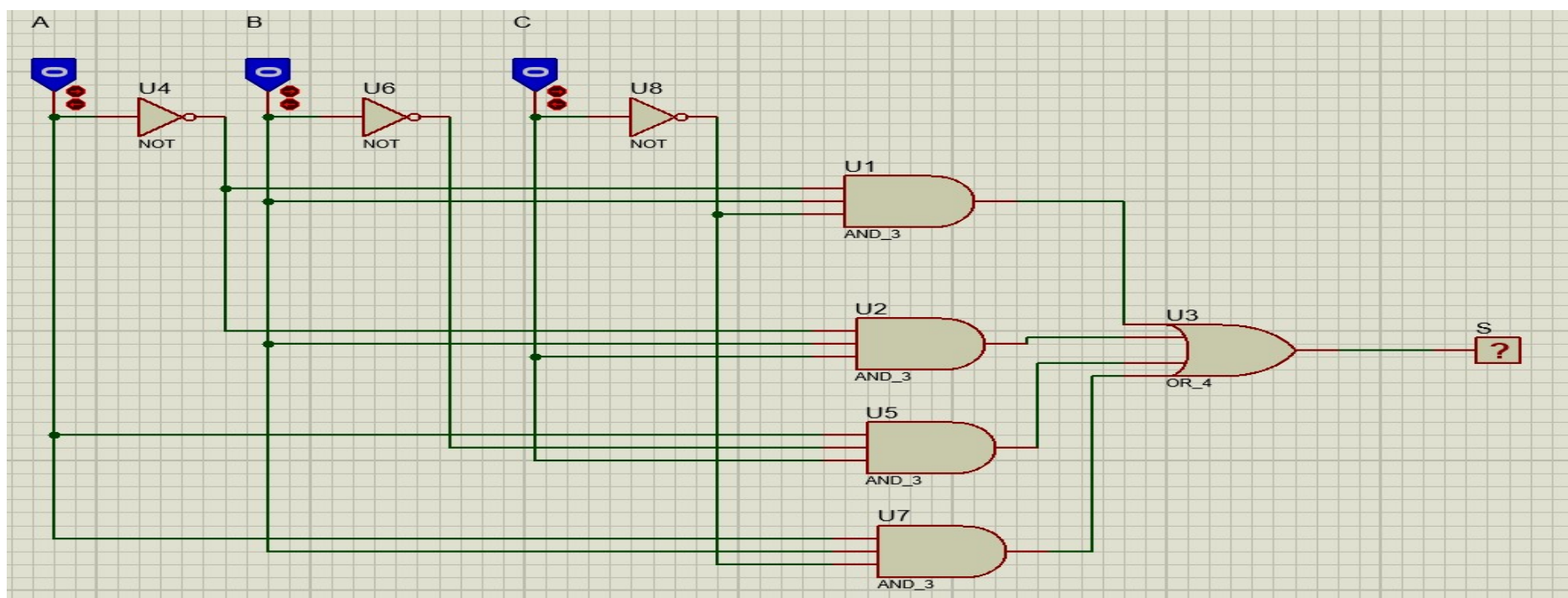
$$F = \overline{A} \cdot B \cdot \overline{C} + \overline{A} \cdot B \cdot C + A \cdot \overline{B} \cdot C + A \cdot B \cdot \overline{C}$$

$$F = \overline{A} B \overline{C} + \overline{A} B C + A \overline{B} C + A B \overline{C}$$



Determinando a Expressão Lógica com a Tabela Verdade

$$F = \bar{A} \bar{B} \bar{C} + \bar{A} B \bar{C} + A \bar{B} \bar{C} + A B \bar{C}$$





Determinando a Expressão Lógica com a Tabela Verdade

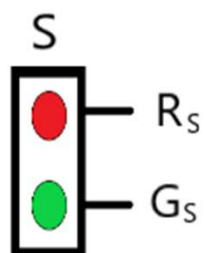
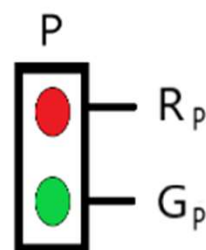
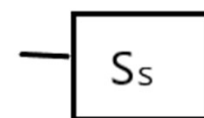
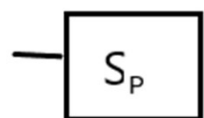
A	B	C	F
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	0

$$\bar{F} = \bar{A}B\bar{C} + ABC$$

$$F = \overline{\bar{A}B\bar{C} + ABC}$$

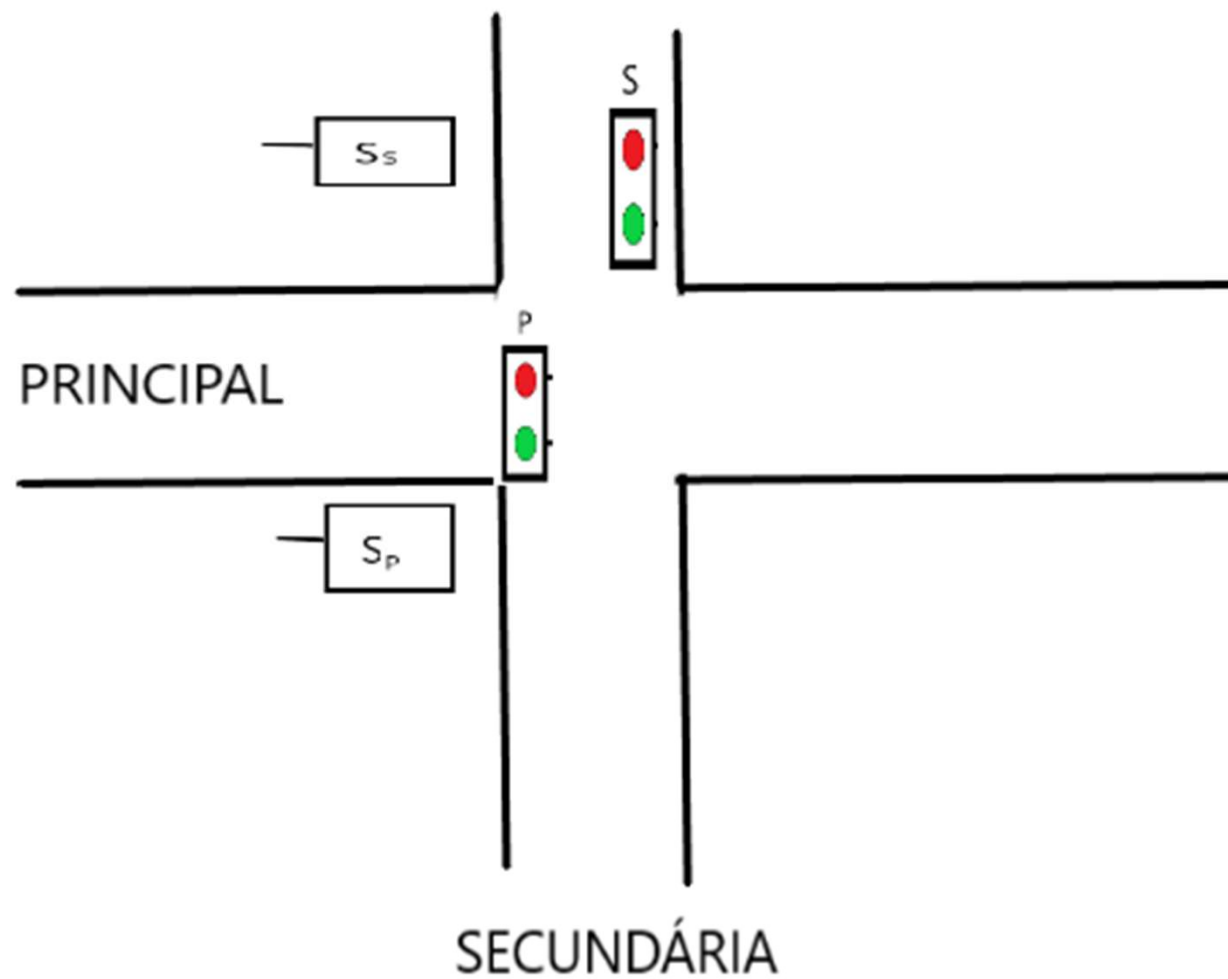


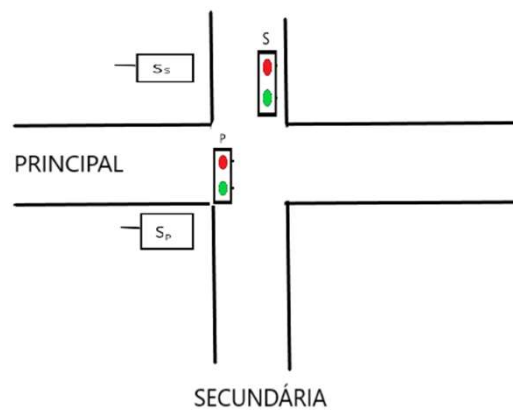
Projete um semáforo para controlar o tráfego de ruas - principal e secundária. Existem sensores que detectam a presença de carro nas vias principal e secundária. A prioridade de acesso deve ser dada a via principal.



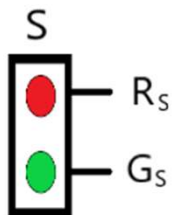
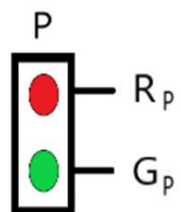
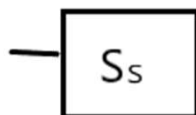
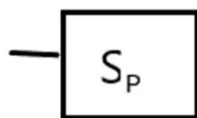


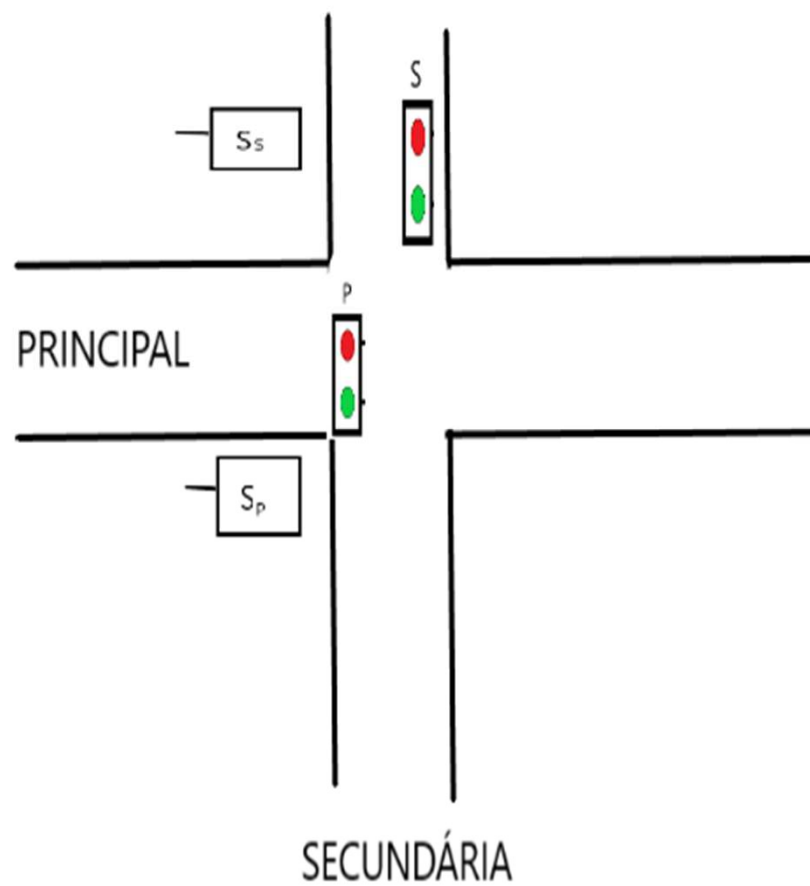
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1. Convenções



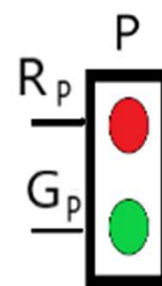
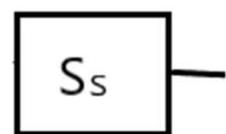


2. Tabela Verdade

ENTRADAS		SAÍDAS			
S_p	S_s	R_p	G_p	R_s	G_s
0	0				
0	1				
1	0				
1	1				



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TAREFA

a) Realize a simulação do controlador de tráfego no software Proteus e envie um vídeo de curta duração (em torno de 2 minutos) evidenciando o aluno, a máquina e a simulação do funcionamento do projeto no software Proteus.